

REMARKS

Claims 1-3, 5-22 and 24-32 are pending in the present application. Replacement claims 20 and 24 are presented herewith. Claim 23 has been canceled.

Claim Rejections-35 U.S.C. 102

Claims 1, 8, 26-29, 31 and 32 have been rejected under 35 U.S.C. 102(b) as being anticipated by the Maydan et al. reference (U.S. Patent No. 5,292,393). This rejection is respectfully traversed for the following reasons.

The Examiner has alleged that Figs. 1 and 2 disclose the features of claim 1. However, Fig. 1 of the Maydan et al. reference merely includes external cassette elevator stage 24 connected to load lock chamber 14 via entrance slit 36 and door or slit valve 38. Figs. 1 and 2 of the Maydan et al. reference do not also include a transfer path having a transfer mechanism therein. Particularly, the Maydan et al. reference as relied upon by the Examiner does not include a transfer path being at atmospheric pressure.

With further regard to this rejection, the Examiner has commented that pocket 108 as particularly illustrated in Fig. 3 of the Maydan et al. reference may be used to hold wafers during transfer. However, pocket 108 cannot be interpreted as part of the transfer path of claim 1, because pocket 108 is located in load lock chamber 14 of the Maydan et al. reference. Particularly, the at least one load lock chamber of claim 1 is featured as coupled between the plurality of processing chambers and the transfer

path, to serve as a standby area for the wafers. Clearly, pocket 108 does not meet these features. Accordingly, Applicants respectfully submit that the multi-chamber system of claim 1 distinguishes over the Maydan et al. reference as relied upon by the Examiner, and that this rejection of claims 1 and 8 is improper for at least these reasons.

Applicants also respectfully submit that claims 26-29 are improperly grouped in this rejection, because claims 26-29 depend upon claim 20. Claim 20 has not been grouped along with this rejection. The Examiner is respectfully requested to acknowledge that claims 26-29 are improperly grouped in this rejection, and that claims 26-29 are not rejected in view of the Maydan et al. reference. Incidentally, Applicants emphasize that the Maydan et al. reference as relied upon by the Examiner does not include a plurality of transfer mechanisms installed in a transfer path, as featured in claim 29.

With regard to claim 31, the Maydan et al. reference as relied upon by the Examiner does not disclose a transfer path being at atmospheric pressure. Also, the Maydan et al. reference does not include processing chambers arranged in multi-layers, and a second cassette stage opposite to a first cassette stage. Particularly, Fig. 1 of the Maydan et al. reference includes elevator 24, which has been interpreted by the Examiner as the first cassette stage. However, load lock chamber 14 is arranged opposite elevator 24. Load lock chamber 14 can not also be characterized as a second cassette stage consistent with the manner in which the Maydan

et al. reference has been interpreted by the Examiner. Accordingly, Applicants respectfully submit that the multi-chamber system of claim 31 distinguishes over the Maydan et al. reference as relied upon by the Examiner, and that this rejection of claims 31 and 32 is improper for at least these reasons.

Claim Rejections-35 U.S.C. 103

Claims 2, 3, 5, 6, 9, 11-25 and 30 have been rejected under 35 U.S.C. 103(a) as being unpatentable over the Yonemitsu et al. reference (U.S. Patent No. 5,788,447), in view of the Maydan et al. reference. This rejection is respectfully traversed for the following reasons.

Applicants respectfully submit that the Yonemitsu et al. reference as relied upon by the Examiner does not overcome the above noted deficiencies of the Maydan et al. reference as emphasized with respect to claim 1. Accordingly, claims 2, 3, 5, 6, 9 and 11-19 would not have been obvious in view of the prior art as relied upon by the Examiner. Applicants also emphasize that the Examiner has not clearly established how the apparatus of the Maydan et al. reference can be modified in view of the Yonemitsu et al. reference, particularly considering that the Maydan et al. reference does not disclose a transfer path having a transfer mechanism installed therein.

Claim 20 has been amended to include the features of dependent claim 23, which has been canceled. Particularly, the multi-chamber system of claim 20 includes in combination a load lock chamber "connected to one side of the processing

chambers, a load lock chamber serving as a stand-by area for the wafers". Applicants emphasize that in the Yonemitsu et al. reference illustrated in Fig. 2, load lock chamber 30 is not connected to processing chambers as featured in claim 20, but is connected to a transfer module 501. Applicants further emphasize that the prior art as relied upon by the Examiner does not show the location of a transfer path between a cassette stage and a load lock chamber, and does not teach the connection of each element, that is a processing chamber, a load lock chamber, a transfer path and a cassette stage. Accordingly, Applicants respectfully submit that claims 20-22, 24, 25 and 30 would not have been obvious in view of the prior art as relied upon by the Examiner taken singularly or together, and that this rejection is improper for at least the above reasons.

With further regard to this rejection, Applicants take note of the Examiner's following comments on page 5 of the Final Office Action dated May 21, 2001, "The motivation to maintain the transfer path at atmospheric pressure is [to] ensure a clean wafer processing environment. The likelihood of cross contamination is greatly reduced when the path is kept at atmospheric pressure." Responsive to this statement, Applicants emphasize that atmospheric pressure in semiconductor equipment generally is not good for wafer processing from the standpoint of contamination. In the present invention, there is a tradeoff between particle contamination, and productivity and footprint of the semiconductor facility. Particularly, the series of a high vacuum processing chamber, a vacuum load lock chamber and a transfer path at atmospheric pressure help to enable effective operation of the semiconductor equipment. However,

the prior art as relied upon by the Examiner does not show this scheme and the resulting benefits of this invention. Particularly, the Maydan et al. reference as relied upon by the Examiner does not disclose a transfer path at atmospheric pressure having a transfer mechanism therein. Also, the Yonemitsu et al. reference does not include a load lock chamber connected to processing chambers.

Claims 1, 2, 20 and 22 have been rejected under 35 U.S.C. 103(a) as being unpatentable over the Yokoyama et al. reference (U.S. Patent No. 5,820,679), in view of the Maydan et al. reference. Also, claims 1, 2 and 8 have been rejected under 35 U.S.C. 103(a) as being unpatentable over the Ono et al. reference (U.S. Patent No. 5,527,390), in view of the Maydan et al. reference. Applicants respectfully submit that the Maydan et al. reference is deficient for at least the reasons set forth previously, and that the rejections are thus improper for at least these reasons. Also, the Examiner has failed to clearly establish how the teachings of the additional references may be combined with the Maydan et al. reference. For example, the Ono et al. reference as relied upon by the Examiner does not include a load lock chamber. The Ono et al. reference includes a carrier line 22 that transfer carriers CR, but a transfer mechanism that loads and unloads wafers stocked in a cassette stage as in claim 1 is not disclosed. Thus, it is not clear how the Ono et al. reference in particular may be relied upon to modify the system of the Maydan et al. reference, or vice versa.

Claims 7 and 20 have been rejected under 35 U.S.C. 103(a) as being unpatentable over the Maydan et al. reference. Applicants respectfully submit that this

rejection is improper for at least the same reasons as set forth above with respect to claim 1.

Conclusion

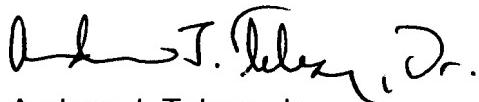
The Examiner is respectfully requested to enter the above noted amendments, which do not raise new issues that would require further consideration and search, because claim 20 has merely been amended to include the features of dependent claim 23. The Examiner is also respectfully requested to reconsider and withdraw the corresponding rejections, and to pass all the claims of the present application to issue, for at least the above reasons.

In the event that there are any outstanding matters remaining in the present application, the Examiner is invited to contact Andrew J. Telesz, Jr. (Reg. No. 33,581) at (703) 715-0870 in the Washington, D.C. area, to discuss these matters.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 50-0238 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Respectfully submitted,

JONES VOLENTINE, P.L.L.C.



Andrew J. Telesz, Jr.
Registration No. 33,581

AJT:cej

JONES VOLENTINE, P.L.L.C.
12200 Sunrise Valley Drive, Suite 150
Reston, Virginia 20191
Telephone No.: (703) 715-0870
Facsimile No.: (703) 715-0877

Enclosures: Version with marked-up changes